MISSISSIPPI RIVER SCENES

Synopsis of Film

1. A Brook Flowing into Lake Itasca.
2. Lake Itasca, the Source of the Mississippi River.
3. Falls of St. Anthony at Minneapolis Furnish Electric Power for Many Purposes.
4. Head of Navigation.
5. St. Paul, State Capitol in Distance.
6. Keokuk Dam and Hydro-electric Power House.
7. St. Louis—one of the Greatest River Ports in United States.
8. Paved River Embankment—a Protection Against High Water.
9. Types of Boats and Bridges.
10. Memphis—a Great Cotton, Tobacco, and Lumber Market.

11. Dock Scenes—Negroes, Mules, and Drays.

12. The River at Vicksburg—Stern-Wheel Steamers and Fish Dealers' Shacks.

13. New Orleans—Accessible to Ocean Steamers.

14. Coaling a Steamer. Coal Floated Down Ohio and Mississippi rivers on Barges.

15. Above the Delta. Land is Being Rapidly Formed by Silt Carried Down by the Mississippi River.

16. Levees on the River. Embankments to Confine River in Times of Floods. Under Government Control.

17. Repairing the Levees.

18. At the Gulf of Mexico.

THE MISSISSIPPI RIVER

THE Mississippi, the "Father of Running Waters," covers in its course from Lake Itasca in Minnesota to its three mouths in the Gulf of Mexico, a distance of over 2,700 miles. With its great tributaries, the Ohio, the Missouri, the Arkansas, and the Red River, and many others, it forms a river system which drains more than one third of the land of the United States. Large vessels ply on all these tributaries and by means of canals connecting Lake Michigan with the Illinois and the Mississippi River water communication has been established between Canada and cities on the Great Lakes and the Gulf of Mexico. With its tributary streams the Mississippi forms the gateway by which our great western states were opened to settlement. In the days before the coming of the railroad it furnished the only passage for the products of the country and within recent years, owing to federal and state activities, it is again becoming a great artery of trade.

The land of the Mississippi watershed raises most of the staple products grown in this country. The great corn belt, those states bordering on and north of the Ohio, the great wheat states farther north and west, all lie within the valley of the Mississippi. Cotton, tobacco, and sugar cane are raised further south toward the Gulf of Mexico. Lumber is still floated down the streams to the centers of population. Coal, oil, natural gas, iron ore, zinc, and building stone are found within or near the valleys of the Mississippi and its tributary streams.

The story of the Mississippi abounds in legends and traditions, and in authenticated tales of bravery and

endurance. The Indians living on its banks knew only of that part which lay within their tribal limits but their imaginations were fired by the immense flood of its waters and their legends of the river were filled with the names of good and evil spirits who watched over it.

The venturesome Spaniard, in his search for gold, was probably the first white man to look upon its waters, but the expeditions of Pineda, Cortes, and de Soto were productive of nothing except wonderful and erroneous accounts of the country which they visited. These voyages later furnished a basis for Spanish claims to the country because of discovery and exploration. No Spanish explorer ever penetrated farther north than the mouth of the Arkansas River.

A century and a half later the fur traders and missionaries of New France (Canada) completed the task the Spaniards had only begun. Nicolet, Allonez, who first applied the Indian name to the River, Marquette, Joliet, Hennepin, and La Salle, from 1650 to 1682 explored the regions from Minnesota to the Gulf.

The history of the valley of the Mississippi is one of frequent change in control and ownership. Napoleon, in 1803, sold land comprised in the "Louisiana Purchase" to the United States for $15,000,000. From that purchase have been formed the states of Louisiana, Missouri, Arkansas, Iowa, Minnesota, Kansas, Nebraska, the Dakotas, Montana, Wyoming, Oklahoma, and Indian Territory, and parts of Texas and of Colorado.

With the introduction of the steam vessel, the region bordering on the streams of the Mississippi valley was quickly settled and river traffic grew with the increase of population.

River trade was at its height about the time of the Civil War but has been much reduced because of the numerous railroads which parallel the rivers and cross their valleys.

Though water transportation is much cheaper than rail, the railroads, owing to the length of time required for carriage by water, were able to win away most of the former river freight. The change was gradual though the large numbers of palatial river steamers lying rotting at their wharves bore testimony to the fact that a change had taken place.

From time to time attempts were made to re-open the river trade but it has been only since 1907 that determined efforts have been made to restore to the rivers their former glory. By deepening the river channels and by building canals, locks, and levees, the United States Government has made possible the use of almost 16,000 miles of waterway in the Mississippi Valley.

Since the area drained by the Mississippi system is almost 40 per cent. of the area and contributes over 75 per cent. of the exports of this country, it can readily be seen that there is great need of efficient water transportation to supplement the overtaxed railroads.

The Inland Waterways Commission as far back as 1906 stated that the 26,200 miles of navigable rivers of the United States carried only 127,000,000 tons of freight as against the 1,600,000,000 tons carried by railroads at an average charge of from three to four times that of water transportation.

The film opens with a view of one of the brooks which flows into Lake Itasca, the source of the Mississippi. The state of Minnesota has set apart a park of nearly 20,000 acres which includes the entire system of lakes and streams which feed the headwaters of the river. Lake Itasca itself is the prominent feature of the park. It measures about three miles in length and from one-sixth to three-quarters of a mile in width. It empties into the Mississippi River channel a far greater volume of water than that contributed by its inlets, showing that the spring-fed lake is the true

source of the mighty river. The cold waters of the placid, tree-rimmed little lake are carried through 2,700 mile of river channel to flow into the warm waters of the Gulf of Mexico. Through this region are numerous large and smaller lakes which, having their outlet in the Mississippi River, are equipped with dams and gates to control their outflow in times of high water preventing floods, and to furnish a steady supply of water to the river in times of low water and drought. This enables steamers to ply the river at all times as far as navigation is possible.

Proceeding down the river we come to the cities of Minneapolis and St. Paul. The views here shown give us a good idea of the great width of the Mississippi River even so near its source. The Falls of St. Anthony, which lie within the city of Minneapolis, furnish over 70,000 horse-power which is used to run the street cars, shop machinery, and the great flour mills of the city. The Falls are timbered over their entire length with heavy beams to prevent the wearing away of the stone bed of the river, which, without these timbers, would cause the falls slowly to move upstream and render useless the enormous power houses which utilize them.

The Mississippi throughout its journey of over 2,700 miles is, for the most part, a slow-moving stream. Its source is only about 1,400 feet above sea level, making its average descent about six inches to the mile. There are, however, numerous places where the river descends many feet within a short distance, thus forming rapids or falls.

To utilize the great amount of power going to waste at the Des Moines Rapids the greatest hydro-electric plant in the world has been built. It consists of a great dam nearly a mile in length reaching from Hamilton, on the east bank of the Mississippi, almost to Keokuk in Iowa, and a power house 1,400 feet long and 123 feet wide situated at the open end of the dam. A new system of locks and

canals supplants the wholly inadequate system by which river traffic was formerly carried around the rapids.

The dam itself rises 32 feet above the bed of the river and is made up of 119 arches through the tops of which the river, in times of flood water, is allowed to flow. At normal heights of the river the tops of the arches are closed by sliding steel doors, thus forcing the entire volume of the river's water through the power house.

Above the immense turbines which rapidly revolve far down in the river's current are placed thirty electric generators, each capable of producing 10,000 horse-power. It is expected that the ultimate production will be about 200,000 horse-power, although at present only 120,000 is developed. St. Louis, 144 miles below Keokuk, has contracted for 60,000 horse-power for a period of 99 years. The district around the power plant is as yet unable to use the remainder as factories are still few in number. Cities and towns in Iowa, Illinois, and in the neighboring states are supplied with power carried to the distributing stations by heavy cables on lofty steel towers.

Many hydro-electric plants have been built within recent years, both in this country and abroad. Steam is rapidly giving way to electricity in those parts of the United States where electricity can be generated at an initial cost of less than $1,000 per horse-power. At four per cent. the interest on $1,000 is $40.00 which is the average cost per horse-power unit generated by steam. The great hydro-electric plants at Minneapolis, Niagara Falls City, Vernon (Vermont), and at the various irrigating projects of the West are now operating successfully and economically.

To the south is St. Louis, one of the greatest river ports in the United States. The city is advantageously situated between the confluences of the Missouri and of the Ohio with the Mississippi.

With the center of population rapidly moving westward and with the improvement of river channels and of canals St. Louis is destined to become the greatest of our river ports. It lies near the center of the great agricultural region of the United States. Grain, lumber, coal, live stock, cotton, and tobacco are commodities for which St. Louis must become a great distributing center. The film shows the embankments paved to prevent erosion, the busy docks, the great river steamers, and Eads Bridge which connect St. Louis with the east by rail.

Memphis, in Tennessee, occupies the only available site for a large city on either bank of the river from St. Louis to Natchez. It is a great outlet for cotton, tobacco, and lumber produced in the states to the south and east. The land and water scenes are typical of transportation in the Southland. As Memphis is the head of navigation for vessels of moderate draught it is a great point of transshipment from river to rail, and the steamers seen at the wharves are larger than those which, at present, can ascend to St. Louis.

Vicksburg, with it semi-tropical vegetation, next appears on the film. The ever-present flat-bottom stern-wheel steamer is seen proceeding down the river. Here on the mud-flats are the shacks of the fish brokers who purchase the catches of the river fishermen. Like many other river cities, Vicksburg owes its origin and prosperity to the need of an outlet for the products of the country around it. Cotton is its chief export.

New Orleans, the "Crescent City," is a hundred miles from the mouth of the river. Ocean steamships can readily ascend to the city though not much above it. Much of the land between New Orleans and Memphis is below the river level at highwater and the river is confined to its channel by immense levees which are here shown.

The levees of the Mississippi extend for more than 1,400 miles along the lower reaches of the river. They are essentially earthern ramparts built of clay, loam, or sand taken from the river banks. The levees are usually about eight feet on the crown and slope to the river bed at an angle of 30 degrees. If the levee exceeds a height of ten feet it is usually re-enforced on the land side by a supporting embankment which rises to within a few feet of the crown.

In building a levee its location is surveyed and marked. This is no easy task as the eroding current sometimes makes it necessary to set the levee some distance back from the bank even against the protests of the land owners who feel that much of their land is being needlessly taken from them.

When the survey has been made and the amount of filling necessary for the completed levee has been computed, the contracts are let on a basis of a cubic yard of filling.

The contractor, with teams, excavators, and men clears the land of trees, stumps, sticks, and bushes. Any piece of wood left to rot in the levee may produce a small crack or a crevasse through which the river's water may come in increasing volume carrying away an entire section of the levee and bringing flood and destruction to the low-lying bottom lands behind it.

All the material for the levee must come from the river side of it and at a distance not less than forty feet from the base of the levee.

The first step is to dig a "muck ditch," which is about ten feet deep by twelve feet wide, for the large levees. Into this ditch, the filling is carefully placed and made firm. Men with barrows carry and lay the earth and pack it in the ditch.

The levee is usually made both higher and wider than the contract calls for to allow for the settling of the earth and for trimming after it has become hard packed. It is carefully cut to the proper size and sodded with Bermuda grass which offers good protection against erosion.

In addition to this visible protection of the levees the bends of the river which are exposed to a deep and rapid current are protected by immense mattresses of interwoven wire and willow extending from the levees three hundred feet or more into the channel. These are sunk in the river and weighted down by stones. These immense "revetments," together with the levees, confine the river to its proper channel and protect the surrounding country from devastating floods.

In spite of their strength these levees, especially in the spring, sometimes give way, flooding the low-lying land beyond the river banks. Patrols paid by the Government constantly watch the levees in time of danger.

The Mississippi's vast yellow flood passes through its three mouths into the Gulf of Mexico, carrying with it immense quantities of soil from far-away states and depositing it near the river's outlets, thus extending the land surface farther and farther into the Gulf of Mexico, and forming what is known as a "delta."

Questions on the Film

1. Describe Lake Itasca and the brook flowing into it.
2. Why do the Falls of St. Anthony mark the head of navigation in the Mississippi?
3 How are East and West Minneapolis connected?
4. How wide is the Mississippi at Minneapolis?

5. Describe the construction of the dam at Keokuk.
6. Draw plan of dam and power plant.
7. What is a turbine? A generator?
8. Explain the workings of a lock.
9. What type of bridge is the Eads Bridge? When built? Length? Compare it with any other railroad bridge you have seen.
10. Describe the steamboats pictured in the film. In what do they differ from other steam vessels?
11. To what race does the teamster at Memphis belong? What animals was he driving? What commodities would he be likely to draw?
12. Describe the Vicksburg scene. What are the shacks in the foreground? How do you know?
13. What do you see in the New Orleans scenes? On the levees? Describe the levees.

Questions, Topics, Suggestions

1. Name and locate land elevation separating the Mississippi and St. Lawrence watersheds.
2. Name and locate important tributaries of the Mississippi.
3. State reasons why cities have sprung up at Minneapolis, St. Paul, St. Louis, Memphis, and New Orleans.
4. Name other important cities on the Mississippi River. Name important railways entering St. Louis, St. Paul, and New Orleans.
5. How does river traffic compare with that of fifty years ago? What caused the change?

6. Bring pictures illustrating types of river boats. Of bridges over the Mississippi.
7. Describe construction, appearance, use, and preservation of levees.
8. Where is sugar cane raised in the United States? Where is sugar refined?
9. What states border on the Mississippi?
10. Where is Keokuk?
11. Name cities which are supplied with electricity generated at Keokuk.
12. Locate other hydro-electric plants.
13. Why is it said that the Mississippi flows uphill?

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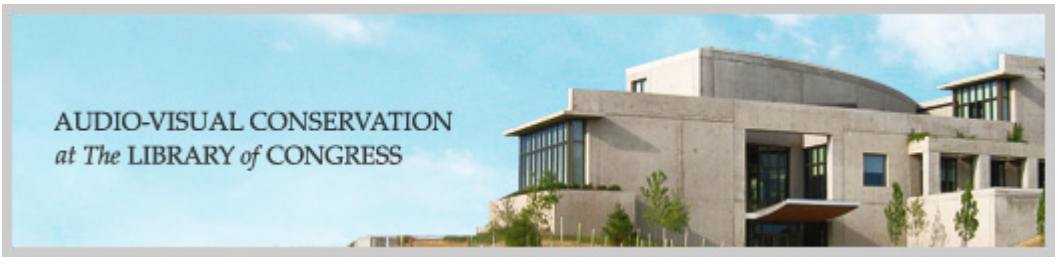

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